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ABSTRACT

Environmental education is defined as a cross-curricular theme in the national curriculum (NC) of England and Wales. Environmental education may be experiential in and outside the classroom; outside, the environment may act as a stimulus for creative writing, investigative fieldwork, or sensory activities. Young children learn best by doing. Primary schools have more flexibility in scheduling than secondary schools and may allocate all or part of a school day for outdoor activities or field trips. Major issues are financial constraints and the need for extra staff or parents to ensure children's safety. Although the national curriculum has been in place for several years, few primary schools have established clear objectives for their environmental education programs. Values and attitudes can not be learned quickly; school planning can contribute to the process of developing environmental consciousness during the child's time in primary school. Two case-study primary programs are briefly described and evaluated. An NC key stage 2 program (for children aged 7-11) took place in a woodland environment and included activities in map making, leaf collecting and identification, art activities, sensory activities to raise awareness, and story telling to stimulate investigative fieldwork. In an NC key stage 1 program (for children aged 5-7), the class measured and described the school grounds, looked for numbers and letters, heard stories, played memory games, and discussed and modeled animal shelters. (SV)

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Experiential Environmental Education for Primary Aged Children

by
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Heather Prince

Experiential Environmental Education for Primary Aged Children

Rationale

Environmental education is defined as a cross-curricular theme in England and Wales, one of five in the National Curriculum (NCC[1], 1990). As such, it can be introduced through topic work in the primary curriculum and through a wealth of core and foundation subjects. Environmental education may be experiential in and outside the classroom. Inside, it may be possible to create models of, for example, the greenhouse effect. Outside, it may be the environment which acts as a stimulus for creative writing or for investigative fieldwork and sensory activities; it may be that environmental issues are examined and rationalised, and solutions are investigated.

Young children learn best by doing. First hand experiences promote understanding and increase motivation for cognitive learning in and outside the classroom.

"First hand experience is an essential element of an environmental approach as it allows the environment to 'communicate' directly with the young learners through real people, problems and successes" (Neal and Palmer, 1990: 134)

Experiences in the outdoors can act as a catalyst to learning not only in curriculum subject areas but also through personal and social education, spiritual and moral education and through other cross curricular themes such as citizenship education. The outdoor classroom provides a learning environment for children. It does not have to be far from the school building; many stimuli can be found in local environments and school grounds (cf Titman, 1994) but contrasting environments can provide tremendous potential for experiential environmental education.

Issues

Timetabling in primary schools in England and Wales tends to be more flexible than that in secondary schools, allowing whole or part of a school day to be allocated for a school "visit". Perhaps this is the crux, for some schools can ill afford limited time out of school and finance to be spent on environmental education when there are competing needs. Often environmental education may constitute a small part of a residential programme geared to outdoor education and, cynically, when the money is not available to pay for outdoor pursuits instructors! Other opportunities may be site led with a cross-curricular approach to using the day e.g. a visit to a museum or historic house. The resultant experiences are mainly finance driven and a consequence of LMS[2] and the requirement for voluntary contributions towards school visits taking place in school

[1] National Curriculum Council

[2] Local Management of Schools

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time.

Staffing and ratios are other major issues and safety is of paramount consideration. Experience outside of the classroom with young children usually requires the help of special attachment welfare assistants, teaching assistants, student teachers and parents in addition to the class teacher to improve the staff:pupil ratio. Out of school visits are often governed by LEA[3] and other guidelines (DES[4], 1989) although an experienced teacher working within boundaries in the outdoors can operate successfully with whole class sizes. Non-specialist teachers may feel the need to seek more experienced leaders or guides and this often adds to the cost but, of course, may enhance the learning value e.g. Rangers at Forest Enterprise and National Park sites.

A survey in 1995 (Prince, unpub.) indicated however, that, whatever the constraints imposed by the Education Reform Act 1988, many primary schools are still carrying out environmental education teaching as before, much of it using the environment in context.

Objectives

An optimum learning experience needs clearer educational objectives but now that the National Curriculum has been in place for a few years (latest revision Dearing, DFE[5] 1995), fewer are inclined to focus on a specific programme of study in their environmental education programmes. Infact, some schools at Year 6, post-SAT[6]'s, are very fluid in their objectives. In the early 1990's, schools were keen to address specific attainment targets which did mean contrivance in some activities. Often, a primary school will concentrate on a few knowledge based objectives with ramifications for skills and personal and social education. It will be interesting to see if any experiential environmental education is used to focus on spiritual education as this gets more prominence in schools now that OFSTED[7] is obliged to report on it through inspections (Prince, 1997). Programmes often focus on the traditional definition of environmental education as 'about' (knowledge), 'in' (skills) and 'for' (values and attitudes) the environment. Other documents give weighting to other aspects and teaching methods (e.g. Deri & Cooper, 1993). Some practitioners believe that environmental appreciation cannot come without learning about self and others and that problem solving through outdoor education experiences must be an initial starting point. Whatever the stimulus or focus, it is widely acknowledged that values and attitudes cannot be learned in the short term. It is a process and good developmental school plans and policies can contribute to developing environmental consciousness through a child's time in primary school.

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3 Local Education Authority

4 Department of Education and Science

5 Department for Education

6 Standard Assessment Tasks

7 Office for Standards in Education

Case Study Programmes

Environmental programmes in terms of units of time in a school day are often site led. They approach environmental education in a cross-curricular way but concentrate on key concepts and skills of core subjects. Some, for example "Earthkeepers" (van Matre, 1987) are very content specific but most are teacher designed and combine approaches and activities of a cross-curricular nature with van Matre (1989) and Cornell (1981) providing some ideas.

Example 1: Key Stage Two[8] Programme in a Woodland Environment

* enlarged black and white map of woodland area e.g. scale of 1:1000. 10- 15 markers are placed on the ground and indicated on the map. Children have to set the map, find the markers and at each point collect four leaves from the ground at the cardinal points.
  extensions - very small markers, three legged children, children create masks to simulate a visual impairment.
* Children gather at base somewhere in the woodland to sort leaves into species (similar looking shapes). Using 'unifix' they create a three dimensional graph and ascertain which leaf is most abundant in the litter of the woodland. Collections can be combined and graphs extended as children pool their resources. Using a simple dichotomous key, leaves are identified.
* Meet a tree. Children have to decide how an unsighted person would get to know them. In pairs, with one child blindfolded, they are taken to meet a tree. They return to base and, with blindfold removed, have to find their tree again.

[8] This is the stage for 7-11 year olds

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- Storytime. Children are told a story as a stimulus to investigative fieldwork. For example:

"The legend of Rodel

Rodel was a giant who lived in a cavern - a dark place by a pool on the side of a hill not far from here. (Can you guess where? Some of you might have been there). He had such big steps that it didn't take him long to get to the lake or to these woods.He loved to chase squirrels and climbed up the trees looking for holes in them where they might hide. Usually, they moved too fast for the large, clumsy giant. Eventually he decided that there must be an easier way o catching squirrels. He thought that if there wasn't a hole up the tree then he wouldn't find any squirrels here. But how would he know which trees he'd looked at and which ones he hadn't? He decided to mark the ones he'd investigated and he thought that the best way would be to put a mark on the same side of each tree. He hadn't got paint or a paintbrush so what could he use? He looked around on the ground and saw some soft, damp moss so he pressed this on the barks of the tree always on the same side away from the sun at lunch time so that he could see all the marked trees together. Gradually, he went through the wood marking the trees with moss after he had climbed up to make sure that there were no squirrel holes. Eventually he decided to sit and wait quietly. Perhaps squirrels don't live in holes. Then he saw some playing in the branches but then whoosh! they scampered across the bridge to the other side of the river. Oh dear, this was their playground- they didn't sleep here after all . He would have to get across the river and think of another idea.

But is the legend of Rodel true? The moss still grows on the tree barks. Does it all grow on the same side? Perhaps we should find out."

Children have to collect data to investigate the hypothesis. Data sheets can be pre-prepared for the less able; others will need to make decisions about the number and kind of measurements. Discussion and critique follows in the field, more detailed follow-up in the classroom (including IT).

- Sculpture. Children have to make a sculpture out of natural materials. This might be an animal or an unnatural object e.g. a clock.
- Nightline. Children are blindfolded and have to follow a rope through the woodland.

Extensions - drawing of route, description of feelings, memorising items attached to line.

- Art. Children to lie down and look at the canopy and then to draw (e.g. with charocoal) the gaps in the canopy. Drawings can be named, exhibited in a gallery etc.
- Lunchtime. Children are issued with airline trays and have to find, in the natural environment, things which simulate a meal that they would like to eat. Main course, pudding, utensils and a drink are included. They share these, guessing what is what in the group.

Extensions - children can find garnish for their own packed lunch.

Evaluation of programme in action

Children seem to be stimulated by the activities presented. Pace is not a problem if extensions are used to differentiate. The markers for the initial mapwork exercise need to be placed beforehand but other preparation can be done whilst the activities are taking place. Such a programme can be used to generate a considerable amount of work and discussion for the classroom.

Problems - leaf identification can be difficult with pinnate leaves e.g. Fraxinus excelsior.Pseudonyms could be given if necessary - consistency is important.
- the investigative fieldwork following the storytime may need teacher input in decision making, depending on the experience of the children.
- wet weather. Shelters can be constructed initially to provide bases, groups and cover and activities modified.

Laughter - much amusement at times. A Fly-agaric (Amanita muscaria) makes an effective simluated cheese and tomato pizza!

Example 2: Key Stage One[9] Programme in a School Grounds/Parkland Environment.

* Storytime. For example:
"One day, a little girl called Kirsty was playing outside her house when she spotted a balloon caught up in the hedge. It was trying to break free and float away and she couldn't decide whether to keep it or to let it go on its journey. She reached up to the string and saw that there was an envelope attached to the balloon. Inside was a message from a class of school children. Her mother helped her to read it.
"We are a small class in a school on a tiny island. We'd like to write to any children who find this balloon and find out what their school is like. Can you fill in the things about your school and send it back? Class 4, Isle of Sharaig, County Pickborough.
The playground is ——— paces long and ———paces wide. We like to play games like ————in the playground at break time. In our school there are some ugly places like ————, some nice places like ———— and Some exciting places like ————. There are ———trees in the school grounds and they can be measured by children touching hands around them. The smallest is — children round and the largest is —— children round. It takes — minutes for a group of six children to cross the playground on a magic carpet"
"Children have to investigate the playground and school grounds to find the answer to the questions. The magic carpet is a small carpet square and the children have to get a group of six from A to B without touching the ground.
* Feely bag. Groups of children have to collect items to put in a feely bag for another group of children to work from.
* . Number/letter spotting. In the built environment, children have to recognise

[9] This is the stage for 5-7 year olds

- Number/letter spotting. In the built environment, children have to recognise numbers or letters in particular contexts. Drawings can be an indication of where to look e.g. of a fire hydrant.
  Extensions - a less directed task .... find letters A - H in the environment and write down where they are found. Draw a picture of the item in the environment and let another child find it and add the letters/numbers.
- Kim's game. A number of items found in the environment are shown to the children. They see them for a while and must replicate them by memory.
- Shelters. Children think what animals might live in park/school grounds and where. They build miniature shelters for such animals using natural materials.
  Extensions - camouflage and simulating it through drama, hiding etc.
- Opposites. Children are given opposite words and find things in the enviroment which describe the word assigned to them. They should not disclose the word but ask other children to guess from the item found.

Evaluation of programme in action

Class management is sometimes more of a challenge with younger children. Environmental games can bring children together intermittently after working in smaller groups. As in the previous example, there is considerable potential for follow-up work in a range of curriculum areas in the classroom.

Problems - Interference can be a problem in an urban area both from other people and extraneous material.
- Material has to be available for some of these activities e.g. sticks, stones, leaves.
- Wet weather. Children need to be adequately equipped even at a short distance from school.

Laughter - too many chiefs and not enough Indians, especially on a carpet square!

Entitlement

Education about the environment already takes place in all schools (SCAA[10], 1996). It is important that first hand experience, experiential environmental education or education in the environment is a main approach to its delivery. There are statutory obligations for environmental education to be taught through the National Curriculum subject orders but beyond this is a matter for individual schools. Many local councils have introduced Local Agenda 21 initiatives as a response to the international programme of action at government level. "Education for sustainability" has risen in prominence through the work of such organisations as the Worldwide Fund for Nature and numerous environmental initiatives and organisations exist for schools e.g. Eco-schools initiative, Learning through Landscapes Trust. Schools can and should be able to develop programmes which are exciting, motivating and not dependent on

[10]The School Curriculum and Assessment Authority

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